

CLAIMS

1. A circuit arrangement for a capacitive proximity switch for the determination of an operating state and having
 - a capacitive sensor element, whose capacitance changes as a function of said operating state,
 - a central capacitor,
 - a first controllable connecting means which, as a function of a triggering signal, supplies a charging voltage to said capacitive sensor element,
 - a second controllable connecting means, which, as a function of said triggering signal, connects said capacitive sensor element to said central capacitor for a transfer of charge from said capacitive sensor element to said central capacitor, wherein said charging voltage is an AC voltage and said AC voltage is supplied to said connecting means in such a way that, in alternating manner, said first connecting means or said second connecting means is conductive.
2. The circuit arrangement according to claim 1, characterized in that said charging voltage is generated with the aid of a DC voltage source and a square-wave voltage source with a common reference potential, a clamping diode being looped in the conducting direction between a charging voltage node and said DC voltage source and a capacitor and a resistor are looped in series between said charging voltage node and said square-wave voltage source.
3. The circuit arrangement according to claim 1, characterized in that said first connecting means is a diode.
4. The circuit arrangement according to claim 3, characterized in that an anode of said diode is connected to said charging voltage node and that a cathode of said diode is connected to a filter resistor, which is coupled to said capacitive sensor element.

5. The circuit arrangement according to claim 1, characterized in that said second connecting means is a bipolar transistor.
6. The circuit arrangement according to claim 5, characterized in that a base of said transistor is connected to said charging voltage node, that an emitter of said transistor is connected to a filter resistor, which is coupled to said capacitive sensor element and that a collector of said transistor is connected to said central capacitor whose other terminal is connected to a reference voltage.
7. The circuit arrangement according to claim 1, characterized in that a switch is connected in parallel to said central capacitor
8. The circuit arrangement according to claim 1, characterized in that it has several capacitive sensor elements, wherein with each of which is associated a first and a second connecting means, and only has one single central capacitor, which is connected in a conducting direction across in each case one decoupling diode to the particular second connecting means, said anode of said decoupling diode being connected by a selection diode in said conducting direction with a selection signal.
9. The circuit arrangement according to claim 1, characterized in that said capacitive sensor element is constructed for application to an underside of a surface or a cover having dielectric characteristics.
10. . The circuit arrangement according to claim 9, characterized in that said capacitive sensor element has a smooth, planar surface for engagement purposes.
11. The circuit arrangement according to claim 1, characterized in that said capacitive sensor element is a voluminous, elastic, elongated body of electrically conductive material.